Faculty of Medicine and Surgery
MEDICINE AND SURGERY

TEACHING ELECTIVES – Chemistry

Objectives

- Provide basic knowledge on classical Chemistry. Passing the OFA test, students will be able to solve simple practical problems.

Contents

- Quantities, Units of Measurement and Significant Figures and Calculations.
- Periodic table of elements and inorganic nomenclature.
- Atom: atom models, atomic particles: proton, neutron, electron. Isotopes.
- Electrons and atom electronic configuration.
- Classification of Matter.
- Solutions. Concentrations of solutions: dilution and mixing of solutions.
- Stoichiometry and Types of Chemical Reactions and Solution Stoichiometry.
- Acid and bases, pH.
- Redox reactions. Oxidation number. Redox reactions and their balance.
- Organic Compounds. Identify properties characteristic of organic or inorganic compounds.

Teaching Materials

- Textbooks used for University admission tests (i.e., Alpha Test or similar)
- Students can refer to their high-school textbooks for an in-depth study and revision of the topic.

TEACHING ELECTIVES - Mathematics

Objectives

- Fill the gaps on the basics of Mathematics.
- Highlight the importance of Mathematics as a language and tool in experimental sciences.

Contents

- Number sets: N, Z, Q, and R.
- Exponents and radicals. Exponential equalities and inequalities.
- Literal calculus. Polynomials and algebraic operations between polynomials. Special products. Polynomials division. Rational expressions.
- Identities and equations: concept of solution. First and second degree equations. Relations between coefficients and roots.
- Exponential functions and their properties. Exponential inequalities.
- Logarithms and logarithms properties. Logarithmic equalities and inequalities. Logarithmic function as the inverse of the exponential function.
- Composition of functions. Quadratic equations and inequalities. Properties of exponential and logarithmic functions. Domain of a function. Lines: line through two points. Slope of a line. Parallelism and perpendicularity conditions for lines.

Teaching Materials

- Textbooks used for University admission tests (i.e., Alpha Test or similar)
- Students can refer to their high-school textbooks for an in-depth study and revision of the topics.

TEACHING ELECTIVES – Physics

Objectives

- Provide basic knowledge on classical Physics. Passing the OFA test, students will be able to identify relevant physical laws depending on the specific application and will be able to solve simple practical problems.

Contents

- Dimensional units and units conversion.
- One-dimensional motion at constant speed and at constant acceleration.
- Newton's laws of motion for a material particle.
- Kinetic and potential energy.
- Pressure in fluids.
- Ideal gas law.
- Coulomb's force between two point charges and electric field of a point charge.
- Electric current.
- Electric resistance and Ohm's laws.
- Magnetic force and magnetic field: infinite rectilinear wire carrying an electric current.

Teaching Materials

- Textbooks used for University admission tests (i.e., Alpha Test or similar)
- Students can refer to their high-school textbooks for an in-depth study and revision of the topics.